

NEW_SEQLIST.ST25.txt
SEQUENCE LISTING

<110> Shen, Ben

<120> Methods of directing C-O bond formation utilizing a type II polyketide synthase system

<130> 054030-0031

<140> 10/646,664

<141> 2003-08-22

<150> 60/405,245

<151> 2002-08-22

<160> 20

<170> PatentIn version 3.3

<210> 1

<211> 15559

<212> DNA

<213> Streptomyces griseus

<400> 1

ctcaggcgcg cggtcaacag caccatcctg cggcgccctg tgcgccccga ggagatcgcc	60
gcccagggtcc tgttctctgct ctccgacctc tccggcggga tgaccggaca ggcctgaac	120
gtggacgcgg gggctctgtg agcaaggagc acggcccggg gaaggcgcaa cggccctgc	180
cggaacagct gctcgcccc gcggcgcgcc cctgggcccc cggcccccg gacgcctgg	240
tcaccgggat ggggttctgc ctgcccgggt cgggcgacga gccggtgcgc acggcgcgac	300
aggtctgggc ggcgcctcc accgggacca gtcattgtcga acgcgacggc ttccaccacg	360
ggaccgtacg cggtgcccgc gaggcgcttc gagagctgct gccggacata ccggcccgt	420
atctgcgcag ctacgcccgc gtccacctct acgggctgat ctgctggcc gaggcctgcc	480
gggacgccgg actcgattac gggaaaggcg agttgagagg ggcggacgtg ctgaccgcc	540
gggccggggg ggacagcaac tacgacagct accgcgcctg gcacgacgcc gatccggcga	600
cggtcactcc ctcggaagcc aagtccctct tcgtacggct cctggtggcg ggcacctcca	660
gcgacgtcgg ccccgccag gccgcgctgc tcggttccac cggcgccaac tacacgggtga	720
gtcgcggtgc gcctcctcc tcggtgctgc tcggcatgc ccgatgatg atcgctccg	780
gccagagcga cctggtcgtg gtaccgggg tggaccgctt cgacaccgaa cgggtgctgc	840
acggacaccg gttgcgcgag gtctgcgagc gcgaggcggt gacggtgcgg cacaacagcg	900
atccgcgggc agcaccctgt cagaccggc cgatgcgccc gtacgacgcg gcgggcgact	960
gcatgaacta cggcgacggg tcggtgacct tgatcctgga gagccgcgaa cagccgccg	1020
cgcggggcgc cggagcgac ggggcggtcc tcggccaggc caccacgcgc gggggcctga	1080
acagcgccgt cgccatcgac accggcggtg cggggctggc cgaagcgccc cgccgcgccc	1140

tgggcgacca	tacctcgtg	gggcggatcc	cctacgtcaa	cggggggcggc	gagggcgacg	1200
cgctgttcac	ccggatcgag	tccaacgccg	tccgcgccct	gtggggcgac	cggtccgagc	1260
aggtgctggt	gagttcgcag	gaggcggtgct	tcgggcacag	cggcgcgcgg	ctcggcaatc	1320
tgggcacggc	gctgacgctg	atgatgatgc	gcgagggaga	ggtctgcccc	acggccaact	1380
gcgcgacccc	gtcgcccgct	tgcacattcg	accgggtccc	cggcaccagg	acgcgtgcgc	1440
tgggcttcga	ccgggcccgt	agcttcaact	accagggtggg	cggggtaaac	agcgcaactg	1500
tgctgggagg	tggcgaatgc	tgctgagctg	cctctgtctg	ggctttccgg	cgccgggttc	1560
gtcctgccgg	ggccggacgg	ccgcgcctgc	accgacctgg	acaccttctg	gggtgtggtg	1620
cgcgacgggg	cgagctgcct	ctccccgtac	gccccatccg	aactccccct	ccgtatcgcc	1680
gggacggtag	acggctggga	cccgagagacc	gaactcccgc	tgctggaacg	gcagatacgc	1740
cgttcctcgc	gcgcggggct	gatggccacg	gggtgcgggtg	accggggcgt	ggagcacgcc	1800
gggctgagcg	cggacgacct	cgatccgggg	cgtaaccgcg	tcgtcgcctg	ctcgtctccag	1860
ttcgcttcc	cggagaccga	gcgctactac	gccctggccc	gggacgaggg	ggtcgccgcc	1920
ctcggcatgg	agtactggct	caacgggacc	ccgccacgtg	tggtgggcac	cgtygcctcc	1980
ggcctccggc	tgccctcgca	gacgtgagc	gtggcgggct	cctgcaatgt	ggcgtctcgg	2040
acgctccacc	tcgtccagca	gatgttccgg	tgcggggaca	tcgaccgcgc	gatcgtcgtc	2100
ggcgtggaca	ccacggtgga	cccgggtctt	gtggcaggca	ccagccacac	cggacgcagc	2160
ggctaccgcg	cgctcctcgt	ctccgacgac	ccgcgccgac	tcgggccgca	cgacgagatc	2220
cagaccggga	acgccaccgg	ggaggggcgc	ctcgccgtgg	tgctgaaaaa	ccggcgggcg	2280
accggggacc	gcccggggct	gctgcaccgc	gcgcatctgc	gcacctcgcg	ctccaacggc	2340
ccctccaccg	tggccaccgg	accgcccgcc	aacgtggtgg	gcgacgtact	ggccacgctg	2400
gcttcggccc	ggcgcgccct	ggcgcatctg	gcgttcgtca	acgactacgc	ggacggcaac	2460
cggttcgtcg	aggaccacct	gtgccaggcg	ctcgccgggg	tgaaggaggc	ggccgggtac	2520
ggcggggagc	tgcggtctac	caaccaggag	gcgggtcttcg	ggcatgtctg	cggaaaccgg	2580
ggcctggtca	aactctcctg	cagcctcctc	atgtcgcgcc	acggccatat	gcggcccgag	2640
gccaacaccc	tggtcccgta	cgcggtgtct	ccgggcgacc	cgggtctcgc	ggcgggcctg	2700
gcgaccggcg	gagacagcgc	gctggtgtct	gcctccgggg	cgggcggcga	gcggcagagc	2760
atggtcatcg	aatacgaagg	cggcgacttg	ccatgaccca	cgttcacagc	acggcgacgc	2820
ggccggggac	ggccgcggga	ggggaccggt	cgcgggcgcc	ggtaagcacc	cgcggtggtc	2880
tcgacggccg	cgggggcgac	ggtcctgccc	ccggggccct	ctccgacgcg	ctcaccgcgc	2940
tcggcctcgc	ccccgaggcc	ccggacaccg	aggccccgga	caccggccgc	gccgattccg	3000
gcgaccccgc	cccggccgcc	tactgcgctc	tgctgtctcg	cgaggaggcg	tacggcgccc	3060

NEW_SEQLIST.ST25.txt

gacgctcggc	gggcctggac	cgtcacgcg	tccgggccc	cgcgtggcg	attgcggcg	3120
cgggcccggg	acggctcgtc	ctggtgaccg	acgcgacggg	cgagaccac	gccggaaccg	3180
accccacggc	gtacgcgcg	ctcgcccg	accgggctg	gtggcagcac	ctggtcaccg	3240
aggtggccgg	gcgcggcgtc	accggcaaca	ccgtggtcac	gggtactcc	cccggcctgg	3300
gccaccggct	gtccgcccag	gccgaggccg	ggctgctcg	ctgtctctg	cagcgccggc	3360
ccaccacggc	cgcgatgtc	gcggccaccg	tcgccttct	ggtctccgag	gggtgttcgt	3420
acctggtcgg	cgagactctg	ccggtcgacg	ggggcgccgg	cctcggccag	atcccgctcc	3480
tgcccgcggg	cccgcgcgac	acggccccc	caccgcgcg	cggtgctccg	cgggagcagc	3540
cgcgccggga	gccggtgagc	ggtcaggacc	tcctgggcca	caaggtcctg	gtggcgggcg	3600
cgagcagcgg	catcgccggc	gccgcggccc	tgacactggc	cggacgcggg	gccgacgtga	3660
tcctggcccg	ccgccggacg	caggcgctgg	aggagggtgc	cgccgagatc	gaggcccggg	3720
gccggcaggc	ctggaccctg	cgtgcgacc	tctccgacgc	cgaggacgcc	gcttctctg	3780
gcgaacgggc	ctggaaggcg	gccgacggcg	tcaccgccct	gctgtacgcg	gcggggcacc	3840
tgggcttcag	cgcggtcggc	ggcgacccc	cttcgcgcg	ccggaccttc	gcggtgaacc	3900
tgacagctt	cgctgcgctc	accgagtacc	tggcgggccc	ctggcgggac	gagaggatgc	3960
ccggagcggg	ggtcgggggt	tcctcggtca	gctccacgct	cagccgggtg	gcgggcctgg	4020
agtactacgg	ggcgagcaag	gccgcgatgg	cgcagtacat	ccgtgtctc	gcggtctcgg	4080
tgggcccgca	cggcatccgc	gccaaactcg	tggctcccgg	catcatcgag	acgccgatgg	4140
gcgacgcggc	ggggcccggc	caccggcgcg	gctggatcag	ccggataccg	gccgggcggg	4200
tcggcgaccc	gcacgagggt	gcggcggtcc	tcggctatct	gctgagcggg	tcggcctccc	4260
gggtgaccgg	tgccgtgctg	cgcgcggacg	gcggcttcgg	cctcgggtgac	gtggctccgc	4320
tgcgccgggg	atacccgga	cgggccttcc	ctgcaccggc	gctcccgga	cgggcggagg	4380
gggagaaccg	atgaccgcca	ccgcgcaagc	aggccgccac	ccggtcgccc	tcgtgcggcg	4440
cgctctctcc	gggatcgggg	ccgccgtcgc	ccgccgactg	gccgcgcgcg	gcagcgccgt	4500
ggcgtggtgc	gggcggcggg	agcccagct	gaaggagggtc	gcggagtcca	tcgcgcgggc	4560
cggcggaacc	cgctgtcgc	tcgccctgga	cctggccggg	ccgggtgcc	ccgccagggc	4620
ggtcgccgcc	accggggccg	gactggggcc	ggtcgggctg	ctggtgtgca	gcgcgggcgc	4680
catccggctg	gccgcgctcc	acgagaccga	ggagcggcac	tgggaacggc	agttgcgggt	4740
gaacctcacg	gtgccgttcc	tgctggcccg	tgagggtgctg	ccggcatgc	gggagcgcg	4800
cttcggtcgg	gtcgtgaaca	tcggctccgg	tgtgggctcg	gaggtggtgc	cgggcagcgg	4860
cggctacggc	gtcagaagc	acaccgtgca	ccggctcacc	gagctgatcc	acgaggagaa	4920

ccgcgacctc	gggatccgcg	cggtcaccgt	cgccccgggc	tgggtctcca	cccggtcgc	4980
ggccccggccc	gccgatctcg	gggtgcccga	ggaggaggtg	ctggacgcgg	aggacatcgc	5040
ggacaccgtc	gcgtggctgc	tggaccgtcc	ggcccggatg	agcgtcgccc	cgtcgggtccg	5100
cgtcgagccc	tcggcgagcc	ggggcccccgc	cggtgacgcc	atgacccgcc	atctgacccg	5160
ttccccgcgc	gagggcgccg	gaccggatgc	tgaggagacc	cgctgatggg	caggaccacc	5220
ctcatcgagc	acgacgtgcc	ggtggagatg	cgcgacggga	cggtgctcgc	ggccgatgtg	5280
tggcgccccg	ccgaaggacc	ggcctcgccc	gccgtgctct	tccgcacccc	gtacggcaag	5340
ttccccgctgg	gtcttgccac	cctgaccccg	gcccagtgcg	tggaccgggg	gtacgcggcg	5400
gtcgtgcagg	acacccgggg	ccggttcggc	tcggaggggc	agtgggcgcc	gctggactgg	5460
ttccaggaggg	ggcccgcacg	gtacgacacc	gtcgagtggg	ccgccgaaca	gccttggtgc	5520
gacgggaacg	tggccatggc	gggcacctcg	taccaggcga	tcgtccagtg	gctggccgcc	5580
atggagaagc	cgccgcacct	gcgggccatc	gcgccacga	tgccacac	ggcccccttc	5640
gacgccgagc	agctcgggcg	tttctcgcg	ctggaccacc	tcacgagctg	gctcggcctg	5700
accgcgctgg	agtgggtgca	gcgccgggcg	gcggcgggcg	atccggtgga	cggggcggtc	5760
gtcgccgagg	tcgtgcagct	gtcacccga	cccgaagtgc	cgctcgcccg	ctggccggtt	5820
tcgaccatcc	tcgacttcga	gggggtttcc	ggccggctgc	gggacatctt	cgcggggcac	5880
gtggcgacgg	tggccgacta	ccacctcggg	gaagtcgggg	tgccacac	ctcggctcgg	5940
ggctggtacg	acgtgttctc	ccacggcacg	atcgagctgc	accgcgccgt	gcgcgccctg	6000
gacccggttg	cgggacggca	cgagctggtc	gtcggaccct	gggtgcactc	gggtcaactg	6060
ccgcagggtgc	agggcgaggt	gaacacgggg	ccctacggtt	cggcgacagg	gcacggcgtg	6120
gccgatctgc	acctggactt	cttcgaccgc	catctacggc	cggccggggg	gacgacgggc	6180
cgggactccg	gcggggagct	gcggtatttc	ctcttcggcg	atgacgcctg	gcaccggggc	6240
gcgagctggc	gcgcccccga	ggccgtcgac	gcgccctggt	acctggcggg	tcggccgcac	6300
ggcgaggagg	gcggcaggct	gctgcccgcc	ccgccccggg	aggccccggg	ccacgacgcg	6360
ttcacctacg	acccgaggga	cccggtgccc	tcgcacggcg	ggcggggtgt	ccagctcggc	6420
aggctggcgg	cgggcccgct	caaccaggcg	catctggagg	acaggccgga	cgtgtctctg	6480
tacacctccg	agccgctcac	cgagccgctg	gacgcctcgc	gccgcgacgc	gctgcggctc	6540
cgcttcggct	cggacgcacc	cgcaccgcgc	gtggtcgcca	aactcaccga	cgtacacccg	6600
gacgggcggt	cgctgctcgt	ggccgaggcc	agcctccggc	tggaggccga	gggggacggc	6660
ccgcgggacg	agccgtacga	cgccgatctg	ctgctcgggg	acaccgcgtg	gcgcttcgcc	6720
cccgggcacc	ggctcggggt	ccacgtcacc	agcagcaact	tccccatct	ggaccggcac	6780
cccaacatcc	cgggcccggg	cggcgaggcg	gagcactgcc	gcaccgcccg	ccagtcggtc	6840

NEW_SEQLIST.ST25.txt

tggtagcgcg	gcccgtacga	gagcgtgctg	cggtgtagca	ccctgcccg	gccgagcgcc	6900
ggggagaccg	cgtgatcgac	gatgtgctcg	atccggcgtc	cgccgccgtg	cccacggcgg	6960
agcagtgcgt	gctgggtccc	ctgctcaggc	gacgtgccgc	cgcagaccg	gcggcgccgt	7020
acgcgttgat	gccggacggt	gacctctgga	cgtacgcgcg	cacctcccg	gagaccgagg	7080
agacggccgc	cgcgctccag	gcgctgggag	tcgtcccggg	cgaactggtg	ctgagctggc	7140
tgcccaacgg	acccgacgcg	ctgcgcgcct	ggtacggggg	caacttggtg	ggcgcggtcc	7200
tggtagcgct	caacatcgcc	taccgggggt	cgatcctcg	tcaggtgatc	gccgacagcg	7260
gggccgaggt	gctgatctgc	cgcccgctgc	tggcgcccg	gctggaggat	tcggacgacg	7320
cggtgggggg	ggtgcgcacg	gtggtcctgc	tgccggggcc	cgaggacgcg	gcccaggacg	7380
tggagcgctg	cgcggggcgg	ctggccacgc	gcttcggggt	ggagaccgca	ctgcgcgcgg	7440
accgggcgga	gttcgcggag	ccggtgcccc	cccccgccc	gtgggacccg	cagaccgtca	7500
tctacacctc	cgggacgacc	ggtccgtcca	agggcgtcgt	ctctcctac	gcgcacctgt	7560
acagcagttg	caccgcgcgg	ttccacggca	tggccggacc	ggaggaccgc	tatctgctgc	7620
aactgccgtg	gttccacgcg	ggcggcacga	tcggcgcgta	gggatgctg	gtgcacggcg	7680
gttcggtgac	ggtcgtgcc	gcgttcacca	ccggggagtt	ctggcgctg	atccggcgga	7740
cggggacgac	cctgtgcacg	ctgctcggcg	tgatggcgac	ctatctgctc	aagcagccgc	7800
cgctgccgca	ggacaccgcg	cacccggtgc	ggcgggccta	cgatcatccc	ttcaccgagg	7860
gggcgacgga	gttctccaag	cggttcgggg	tcccggtccg	cgcgctgttc	aacatgaccg	7920
agggtgctgt	tccggtgctc	tccgcgccgg	accaccacc	ggcggtcccg	atgcaactgc	7980
gggagccccg	gccggggatc	gccgcgcggg	tcgtcgacga	ccacgaccgg	gaggtggcgg	8040
acggcgaggc	gggcgaactg	gtgctgcgcg	cggaccgtcc	gtggtcgttc	ctgagcggct	8100
acctcgcccg	gcccgcggag	acggccgcgg	tctggcgcaa	cggctggttc	cacaccgggg	8160
acaccttccg	ccggggcccc	gacggcgggc	tggtcttctg	ggaccgcaag	aaggacgcca	8220
tccgcaggcg	cggcgagaag	atctctctct	tcgaggtgga	ggcgaggcgg	gtggcccacc	8280
cgggggtgct	ggaggcgggc	gcggtggcgg	tgcccgcgga	cgagggcgag	gacgaggtgc	8340
tgctggtggt	ggcggaccgc	gacccctcgg	ccccggtcga	cccggcggcg	ctgctggaat	8400
tcctgcggga	gcggctggcc	cacttcatgc	tgccgcgcta	catccgggtg	ctgcccgagc	8460
ttccgaagac	tcccaccggc	aagccgacca	agcacacgct	gcgcgccgag	ggcgtggtgg	8520
cggggacgct	ggaccgcgag	gccgcgggca	tccggatacg	cagggagaag	atcgtatgaa	8580
ccaggaagca	ttccggggcg	gccaggaacc	cccggccgag	tgggcggggg	cggcgaccga	8640
gtcgttcgcg	gacttcgcgg	accgggtgga	cggcaaggag	gtcgtaccgc	tcggggcctc	8700

NEW_SEQLIST.ST25.txt

gcttgccggc	ggggctgcc	ccctgacgt	ggaccggccg	caccgccga	acagcctga	8760
cctgacgtc	tcccgccat	tgctgctcg	cctgatgtc	gcgggcgac	acccccggg	8820
gcgtacggc	gtgatcacc	ggaacggcg	ggcgttctc	gcgggcgac	acgtcgggag	8880
cgtagggcg	tggcggtcg	gcgaccggc	ggacacccc	ttcgaccga	tcacctcga	8940
cgccactac	ctgcgggtc	gcgaggcat	cctgcatct	ccgaagccg	tggctgtgg	9000
gctgaccgg	gcggcggcg	gcgccgggc	ggagatcgc	tcgccggcg	acttcggct	9060
ggcggacac	cgtgcctca	tcggcagtg	cctggccgg	gtcgggcat	tggggaacg	9120
ggtcctgat	tcccgctga	ccggtccgc	gcgggcgac	gagatctac	tcaccggcg	9180
gatggtctc	ggggacgag	cggtgcctc	ggggctgtt	gaccggtct	gcgaaccga	9240
ggatttcga	cgcgaactg	ccgatctgc	gggccgggt	gcggcactg	cgaaccgtt	9300
ggtgggctg	ttcaaggag	tgccggagc	gagctgggg	cagccggcc	agtacgggt	9360
gcggctccg	gacacgtac	acctgaagc	gcacgcgac	gtggccgac	cccgggagg	9420
gatggccgc	ttcacggag	agcggccgc	ccgcttcac	ggcgcctga	cggtgccgg	9480
cggggtctc	gcccggcac	ggggtctcc	tccggtgcc	ggccccgtc	ggtgcgcga	9540
cccgtcggg	ccgcctcct	ttgcggctg	gacggagag	gtattctga	tctgatga	9600
gaagacttc	ggcaccggc	cccggcgcc	tcgccgcct	cgctccgcc	cctgtccgc	9660
cccctgtcg	cgttcaccc	cggccccgc	gaggaggcc	cccgatgac	ggccccgac	9720
gccgaacct	caccggggc	cgcgtcgag	agacggcga	cagcatcg	gtctccggc	9780
cccggctga	ctactggac	gccggagct	cggaccgcc	gggatcgcg	ctgaccacg	9840
gcgccgggc	cgaccaccg	atgttcgat	cgcagatcc	ggcactggt	ggcgcggtc	9900
accgaccc	gcgctggag	gtgcgtacc	acggggcgt	cgtctccgc	acgggcag	9960
tccgtacgt	ctacgcggc	ggggacctg	cagcgctgt	ggacgggcc	gggatgccc	10020
ggcccgtgt	gctgctggc	cagtcgatg	gcggcaaat	cgcgcagg	tatctgcgc	10080
gacggcccga	cgaggtcgc	gcactctgg	tgatcggtc	cacctcaac	accctgccca	10140
tcacccggc	cgagcggcg	ggcctggcg	tctccgcgc	cttcattcg	ctgatgcct	10200
accgtcgg	gacccggct	atggccagg	cgtcggccga	ggacccgg	gcgcggacg	10260
atctgcgca	gaccttcct	gccaacggg	ggcgctcct	cctcaccac	tgggacggc	10320
tgaccgcgc	gatcgaccg	tccccgact	accgggtcg	gaagcccg	cttctcctc	10380
gcggtgaaca	cgacgcacg	ggtaacatc	gctcggcg	ggaacgggt	agcgaacgc	10440
atccccacg	cgagttccat	gtgatcccc	gtgccgaca	tgtcgcaat	ctggaccgt	10500
ccgacgagt	caaccggct	accgtcgct	tctgaaggc	ctgagaccc	agcgagacca	10560
tgactgacca	cgacatcac	cccgacggc	gacccctcc	gatgccggc	tccgacggg	10620

NEW_SEQLIST.ST25.txt

tcagcgacgc	ggaagccgcc	ttcatcagcg	agatgggttc	gctgatggag	cgctggggcc	10680
ccccgcaggc	caccggccgc	ctcttcggct	acctcctgct	gcgcaacaag	ccggtggacc	10740
tcgacaccat	gacccgcgaa	ctcggccagg	ccaagagcgg	gctgagtggt	gccgcccgc	10800
aactggaggc	ctggtccctg	gtgcggcgct	cgaccagggc	cggcagcagg	cggatcgact	10860
acgaggcggt	gggcgacctc	cagcacctgc	tgttggtgaa	caacgcccat	atgcgcaagt	10920
tcaccgagac	gctgagctcg	ggaatcccgg	tggcgcgcg	cgaggcccgg	gaccgactgg	10980
cctcgctcgc	cggcctgttc	aacgggtacg	tggagcagac	cgaggcgctg	gtggccgcct	11040
gggaggcccg	gcgcgcccgc	acctgagccc	ggccgttccc	ttctcccttc	tgagcccggc	11100
cgttctcttc	tcctctcttc	tccgcttctc	cgctcttccc	cttctgctt	ccgatggagt	11160
gaccgtgaac	gtgtcgtccg	tccccgcgcc	gggcaacgga	acaacggtgg	ccaccgccgt	11220
ggcggaccct	ggagtcgga	tccgcccgc	ggtcatggac	gcctgctcgc	tgggtacga	11280
cgacgcgggc	tggcgggctg	acctgaaccg	gctgggcgag	aacgcccctg	agtacctgga	11340
tgctctcttc	gcctcgttct	gccggtactt	cggcgcctcg	cacaccgcgt	accgcgacgc	11400
gctcgccgtc	cgccggcagg	acgcgatcga	cgctgctctg	ccaccggacc	ggccaccgtt	11460
cgatctggcc	gggcatctcg	cggaccggga	acggcagggt	gtgacgggcg	agttcgccat	11520
gggctcggcg	gaacggctcg	cggacggccg	tacggtcaac	gagtggtgc	tggagaccgt	11580
acgggacgtg	gcgcgaccga	tccacgtctg	ggccgggata	tcctgcgcg	accgccgcgc	11640
cgcgctcgcg	gagctggagc	ggctcgtggc	ggccggggcg	accgggctgt	gcgtcatccc	11700
cttcttgga	ggcaccgacc	cggccgaccc	gaggttcgcc	ccggtctggg	acgccgcggc	11760
cgaggcgcg	ctgccggtct	ggctgcacac	cggccaccac	ttgccccgga	gccaccccag	11820
cggcctgggc	agctggcgta	cggtcgagac	gctcgcgggc	cgccaccgcg	cgtgctgct	11880
cgtcgcggcg	cacgcgggct	ggcccgatgt	gcaggagatg	ctgctcaccg	ccgcccgga	11940
ccccggggct	ttcctggagt	tctcctcgca	ccggccccgg	cacatgtcca	agcccggctc	12000
gggctgggag	cccctgctgc	accacgcccg	ggggatggcc	cgcgaccggg	tcattgttcg	12060
cacctcgacc	tgggtcaact	cggggccgac	gggaccgctg	gccgatgagc	tggccgcgct	12120
cccgtctccc	gccgacgtgg	tggccgctg	gctctcgggc	aacgcggagg	cgtggtcgc	12180
ccgtgcggcc	gggaccacc	ggggctgagc	cgcgccggga	gccctccgga	tgatcgggac	12240
ccgtgcggcg	gggcagggga	tccgccggac	ggccgaaagc	cgcagccccg	tcggaagcct	12300
ctttccggca	cagtgggga	ggaggcgat	cctggccggg	ccgggcctac	cgctggcctg	12360
gtcagccacc	ccgaccaacg	gagatgtacg	acatggcaaa	gatcttttc	gtggtgtccg	12420
gcgcggacca	ctggaccctg	gcggacggca	cggccaccac	cagggcttc	tgggcccagg	12480

NEW_SEQLIST.ST25.txt

aggccgtggc	gccgtaccgg	gcgttcaccg	acgccgggca	cgagggtgtc	gtcgcaccc	12540
cggcgggcgt	cgtcccgaac	gtggaccggg	gcagcctggc	gcccgaagtc	aacggcgggc	12600
aggagggcgc	cgagcgggtg	ggcgccgttc	ttgaggcgtt	cgaggagctg	ggcgggccgg	12660
tcgccctgga	ggagctggac	ccggagctgt	acgacgccgt	cttctacccc	ggcgccacg	12720
gcccgatgga	ggacctcgcg	gtggaccggg	tctccggggc	gctgctcgcc	cggtgtctgg	12780
cttcggggca	gccgctcgcg	gtggtctgcc	acggcccgcc	ggcgctgctg	ggcgcgaccg	12840
gaccgcagcg	ccggtccggc	ttcgccgggt	atcggtctgac	gggcttcacc	aacgccgagg	12900
aggcccagcg	gggcttcggc	gacaaggcga	agtgggtgct	ccaggaccgg	ctgggtggcg	12960
tgggcgcgga	cttcaggaga	ggtagaccct	ggcgccggtt	cgatcatcac	gaccggaacc	13020
tgatcacggg	tcagaacccg	gcctcctcgg	tccgttggcg	cgccgaactg	ctcaaccggc	13080
tcggctgacc	ggcgaatcgg	cggttcggcg	cccgccggcg	cggtgtgttc	agaccagctc	13140
ccgcccgcgc	ggcggtcgcg	agagctccag	caccaccggc	ccggtctcgg	gctcgtcccc	13200
ggagacgggc	cggagcgcgc	caccgaccgt	caccagggtg	ggagccggcc	ccagatcttg	13260
gcagcggaag	acgaaccctt	ccgagaaccg	caccagggac	tcgttgccgc	cagcctcggt	13320
atagcggtag	accacggcgg	tccggagcac	cagccgctgg	ccggtggtgc	gttcgggctc	13380
cagttcgctc	gacgcgcaca	ccgggcacag	cagccggcgg	aacgaggcgg	tgccgcacca	13440
gcggcagcga	ttgtaggaga	ggccgcactc	ctcgtgcgcc	ttctggacgg	tgcccattgc	13500
tgctctggac	acggctcgac	cccctgcgct	cgactcggac	gcgccgcacc	tgactcgcg	13560
gcgcgtccgc	accatatggc	actcagtggc	ggaccgtaaa	ggcactgagt	gcccattggt	13620
actcagttct	cgccgacggc	tgctctgacg	tgctgcacga	cacgccacat	cggtgtgccc	13680
ttccgcgcga	ccatcacgat	cacctcccct	ttccgctcgc	cgccaccgga	gaccggaaa	13740
ggggtggccg	gtgtggggac	ggcaggccgc	ccccacacct	ctcggaccag	ggcgagcgca	13800
tgatccacag	ccgcctcggg	gtcgcccgcc	ccgcccgaac	gcagccacag	ccgaagcccc	13860
ttgttgtgcg	cggcgaccac	cgaagcggcg	atcacctcgg	cccgagctc	ccgctcgcca	13920
ccctcgccga	agcgaccccc	cagatgtcgg	gcgagagtct	gttcgtaacg	gcgcaccacc	13980
gacagtctgt	acgtccgcag	ccccggcacc	tcccagtgta	ggcggtagcg	ctgcacggag	14040
aactcggggg	tggcgcgcta	catccgcagc	acgatgcgcg	cgcgctcgca	caccgcggcg	14100
accgggtcgc	tgctcgtcag	ggcgccaggg	aactcgggtc	tctcggcgag	gcagcgctcg	14160
tggtccggga	agaccgcgtc	ctccttggac	gggaagtagc	ggaagaacga	acgccggccc	14220
accccgccga	gcgccacgat	gtcgtccacg	gtcgtccgct	cgaagccccg	ctccaggga	14280
agccggaagg	ccgcctgtgc	gagcacctcc	cgatgggtg	cttctctctc	ggatctcgc	14340
gcctcgctca	tcgggcgaaa	cgtagcaccg	cgaggaggat	tttggcactg	cgtaacctta	14400

NEW_SEQLIST.ST25.txt

cagaggggtac tgagtgccat aatctctcca tcagtacgaa tgacaccagc gtgggaccac 14460
 acccaggtag gcaggagagc cggcgtgagc ttgaggatcg ttgtctgtgt gaagtacgtg 14520
 cccgacgcga ccggtgaccg gcgtttcgcc gatgacctga cgctggaccg tgaggatgtc 14580
 gacggctctgt tgtcggagct ggacgagtac gcggtcgagc aggcgttgca gatcgtgac 14640
 ggggcggagc atgcggagat caccgtgggt acgggtgggtc cggaggatgc caaggacgcg 14700
 ttgcgaagg cgttgtcat ggggtcggac aaggcgggtc acgtcgagga cgacgatctg 14760
 cacggcagtg atgtgatggg gacgtcgctg gtgctggcga aggcgttgga gaaggccggg 14820
 tatgacctg tgatctgtgg gatggcgctg acggacgggt tgatgggtgt gctgccggcg 14880
 ttgttgccg agcgtctggg tgtgcccgag gtgacgttgc tgtccgaggt cgcggtggac 14940
 ggtggtgtgg tgacggggcg gcgtgacggt gacacggcgt ccgagcagct tgaggcgtcg 15000
 cttcccgcgg tgggtgcggt gaccgaccag tcgggtgagg ccggttaccg gtcgttcaag 15060
 gggatcatgg cggcgaagaa gaagccgggt gagtcgctgg acctggacga tctgggtctg 15120
 gacgcggagc aggtcggctc ggcgggtgct tggacgggtg tggtattccg caccgagcgt 15180
 ccggcgcgga cggcggggac gatcgtgaag gacgaggggt agggcggcga gcagctcgcc 15240
 gggttcctcg cgggccagaa gttcatctag tccgcatgtc ttccccgct gttcctctct 15300
 ctctctctt cttgtctgga gtgcgttgtc atggctgaag ttctgtgtct ggtcgatcac 15360
 gtggacgggt cggctccgaa gccaccctg gagctgctga cgctggcgcg tctgtcgggt 15420
 gaccgggtcg ccgtggtgct ggggtgccgt gccggggagc ctgccccggt gctgggtgag 15480
 cacggtcgcg tgaaggctct gacctcggac gccccggagt tcgcggatta tctggtggtg 15540
 ccgaaggctg acgcgctcg 15559

<210> 2
 <211> 1281
 <212> DNA
 <213> STREPTOMYCES GRISEUS

<400> 2
 atgtctgctg agctgcctct gctgcggctt tccggcgcg ggttcgtcct gccggggccg 60
 gacggccgcg cctgcaccga cctggacacc ttctgggggt tggtcgcga cggggcgagc 120
 tgctctctcc cgtacgcccc tcccgaactc ccctctcgta tcgccgggac cgtgaacggc 180
 tgggaccctg agaccgaact cccgctgtcg gaacggcaga tacgccgttc ctgcgcgcc 240
 gggctgatgg ccacgggtgc ggtgcaccgg gcgctggagc acgccgggct gagcgcggac 300
 gacctgatc cggggcgtag cgcgctcgtc gcctgctcg tccagttcgc gttccccgag 360
 accgagcgt actacgccct gggccgggac gagggggtcg ccgccctcg catggagtac 420
 tggctcaacg ggaccgcccg cagtgtggtg ggcaccgtgg cctccggcct ccgctgccc 480

NEW_SEQLIST.ST25.txt

```

tgccagacgc tgagcgtggc gggctcctgc aatgtggcgc tgcggacgct ccacctcgtc 540
cagcagatgt tccggtgcgg ggacatcgac cgcgcgacgc tcgtcggcgt ggacaccacg 600
gtggaccggc tcttcgtggc aggcaccagc cacaccggac gcagcggcta ccgcgcgtcc 660
tcgtcttcgc acgacccgc cgacgtccgc ccgcacgacg agatccagac cggcaacgcc 720
accggggagg gcgcgtcgc cgtggtgctg gaaaaccggc cggcgaccgg ggaccgcccg 780
gggtcgtgc accgcgcga tctgcgcacc tcgcgtcca acggcccctc caccgtggcc 840
accggaccgc ccgccaacgt ggtgggcgac gtactggcca cgctggcttc ggcccggcgc 900
ggcctgggcg atctggcgtt ctgcaacgac tacgcggacg gcaaccggtt cgctgaggac 960
cacctgtgcc aggcgtcgc cggggggaag gaggcggcgg ggtacggcgg ggagctgcgg 1020
ctcaccaacc aggaggcggc cttcgggcat gtcgccggaa ccggcggcct ggtcaaacctc 1080
ctcggcagcc tcctcatgct gcgccacggc catatgcgcc ccagcgccaa caccctggtc 1140
ccgtacgcgg gtctgcctgg cgaccgggtg ctgcggggcg gcctggcgac cggcgagagc 1200
agcgcgtgg tgctgcctc cggggcgggc ggcgacgcca cgagcatggt catgaatac 1260
gaaggcggcg acttgccatg a 1281

```

```

<210> 3
<211> 426
<212> PRT
<213> Streptomyces griseus
<400> 3

```

```

Met Ser Ala Glu Leu Pro Leu Leu Arg Leu Ser Gly Ala Gly Phe Val
1      5      10      15

```

```

Leu Pro Gly Pro Asp Gly Arg Ala Cys Thr Asp Leu Asp Thr Phe Trp
20      25      30

```

```

Gly Val Val Arg Asp Gly Ala Ser Cys Leu Ser Pro Tyr Ala His Pro
35      40      45

```

```

Glu Leu Pro Leu Arg Ile Ala Gly Thr Val Asn Gly Trp Asp Pro Glu
50      55      60

```

```

Thr Glu Leu Pro Leu Ser Glu Arg Gln Ile Arg Arg Ser Ser Arg Ala
65      70      75      80

```

```

Gly Leu Met Ala Thr Gly Ala Val His Arg Ala Leu Glu His Ala Gly
85      90      95

```

```

Leu Ser Ala Asp Asp Leu Asp Pro Gly Arg Thr Ala Leu Val Ala Cys
100     105     110

```

NEW_SEQLIST.ST25.txt

Ser Leu Gln Phe Ala Phe Pro Glu Thr Glu Arg Tyr Tyr Ala Leu Ala
115 120 125

Arg Asp Glu Gly Val Ala Ala Leu Gly Met Glu Tyr Trp Leu Asn Gly
130 135 140

Thr Pro Pro Ser Val Val Gly Thr Val Ala Ser Gly Leu Arg Leu Pro
145 150 155 160

Cys Gln Thr Leu Ser Val Ala Gly Ser Cys Asn Val Ala Leu Arg Thr
165 170 175

Leu His Leu Val Gln Gln Met Phe Arg Cys Gly Asp Ile Asp Arg Ala
180 185 190

Ile Val Val Gly Val Asp Thr Thr Val Asp Pro Val Phe Val Ala Gly
195 200 205

Thr Ser His Thr Gly Arg Ser Gly Tyr Arg Ala Ser Ser Leu Ser Asp
210 215 220

Asp Pro Ala Asp Val Arg Pro His Asp Glu Ile Gln Thr Gly Asn Ala
225 230 235 240

Thr Gly Glu Gly Ala Leu Ala Val Val Leu Glu Asn Pro Ala Ala Thr
245 250 255

Gly Asp Arg Pro Gly Leu Leu His Arg Ala His Leu Arg Thr Ser Arg
260 265 270

Ser Asn Gly Pro Ser Thr Val Ala Thr Gly Pro Pro Ala Asn Val Val
275 280 285

Gly Asp Val Leu Ala Thr Leu Ala Ser Ala Arg Arg Gly Leu Gly Asp
290 295 300

Leu Ala Phe Val Asn Asp Tyr Ala Asp Gly Asn Arg Phe Val Glu Asp
305 310 315 320

His Leu Cys Gln Ala Leu Ala Gly Val Lys Glu Ala Ala Gly Tyr Gly
325 330 335

Gly Glu Leu Arg Leu Thr Asn Gln Glu Ala Val Phe Gly His Val Ala
340 345 350

Gly Thr Gly Gly Leu Val Lys Leu Leu Gly Ser Leu Leu Met Leu Arg

355

360

365

His Gly His Ile Ala Pro Ser Ala Asn Thr Leu Val Pro Tyr Ala Gly
 370 375 380

Leu Pro Gly Asp Pro Val Leu Ala Gly Gly Leu Ala Thr Gly Gly Asp
 385 390 395 400

Ser Ala Leu Val Leu Ala Ser Gly Ala Gly Gly Asp Ala Thr Ser Met
 405 410 415

Val Ile Glu Tyr Glu Gly Gly Asp Leu Pro
 420 425

<210> 4

<211> 1278

<212> DNA

<213> Streptomyces griseus

<400> 4

atggggttct gctgtcccg tgccggcgac gagccggtgc gcacggccga gcaggtctgg 60
 gcggcgccct ccaccgggac cagtcagtgc gaacgcgacg gcttcacca cgggaccgta 120
 cgcggtgccc gcgagcggtt cggagagctg ctgccggaca taccggcccc ctatctgcgc 180
 agctacgccg acgtccacct ctacgggctg atctcgtg cggaggcctg ccgggacgcc 240
 ggactcgatt acgggaaaagg cgagttgaga gggcgcgacg tgctgaccgc ccgggccggg 300
 gtggacagca actacgacag ctaccgcgcc tggcacgacg ccgatccggc gacggtcact 360
 ccctcggacg ccaagtcctt cttcgtacgg ctcttggtgg cgggcacctc cagcgacgtc 420
 ggccccgtcc aggcgcgctg gctcgggttc accggcgcca actacacggt gagctgcggc 480
 tgcgcctcct cctcgtgctg gctcggcatc gcccgcatga tgatcgctc cggccagagc 540
 gacctggtgc tggtcaccgg ggtggaccgc ttgcacaccg aacgggtgct gcacggacac 600
 cggttgcgcg aggtcgtcga gcgcgagggc gtgacgggtg ggcacaacag cgatccgccg 660
 gcagaccccc gtcacgacgg gccgatgcgc ccgtacgacg cggcgggcga ctgcatgaac 720
 tacggcgacg ggtcggtgac cctgatcctg gagagccgcg aacacgccgc cgcgcggggc 780
 gcccgagcgc acggggcggt cctcggccag gccaccacgc gcggggcgct gaacagcgcc 840
 gtcgccatgc acaccggcgg tacggggctg gccgaagcgg cccgccgcgc cctggggcga 900
 catacctcgc tggggcggtat cccctacgtc aacggggcgc gcgagggcga cgcgctgttc 960
 acccggtatgc agtccaacgc cgtccgcgcc ctgtggggcg accggtccga gcaggtgctg 1020
 gtgagttcgc aggagcgctg cttcgggcac agcggcgcgc cgctcgccaa tctgggcacg 1080
 gcgctgacgc tgatgatgat gcgcgagggg gaggtctgccc ccacggccaa ctgcgcgacc 1140

NEW_SEQLIST.ST25.txt

ccgtcgcccg tctgcacatt cgaccgggtc cccggcacca ggacgcgtgc gctgggcttc 1200
gaccggggccc tgagcttcaa ctaccagggtg ggcgggggtca acagcgact gctgctggga 1260
ggtggcgatg tctgctga 1278

<210> 5
<211> 425
<212> PRT
<213> Streptomyces griseus
<400> 5

Met Gly Phe Cys Leu Pro Gly Ala Gly Asp Glu Pro Val Arg Thr Ala
1 5 10 15

Glu Gln Val Trp Ala Ala Ala Ser Thr Gly Thr Ser His Val Glu Arg
20 25 30

Asp Gly Phe His His Gly Thr Val Arg Gly Ala Arg Glu Ala Phe Gly
35 40 45

Glu Leu Leu Pro Asp Ile Pro Ala Arg Tyr Leu Arg Ser Tyr Ala Asp
50 55 60

Val His Leu Tyr Gly Leu Ile Ser Leu Ala Glu Ala Cys Arg Asp Ala
65 70 75 80

Gly Leu Asp Tyr Gly Lys Gly Glu Leu Arg Gly Ala Asp Val Leu Thr
85 90 95

Ala Arg Ala Gly Val Asp Ser Asn Tyr Asp Ser Tyr Arg Ala Trp His
100 105 110

Asp Ala Asp Pro Ala Thr Val Thr Pro Ser Asp Ala Lys Ser Leu Phe
115 120 125

Val Arg Leu Leu Val Ala Gly Thr Ser Ser Asp Val Gly Pro Val Gln
130 135 140

Ala Ala Leu Leu Gly Ser Thr Gly Ala Asn Tyr Thr Val Ser Cys Gly
145 150 155 160

Cys Ala Ser Ser Ser Val Leu Leu Gly Ile Ala Arg Met Met Ile Ala
165 170 175

Ser Gly Gln Ser Asp Leu Val Val Val Thr Gly Val Asp Arg Phe Asp
180 185 190

Thr Glu Arg Val Leu His Gly His Arg Leu Arg Glu Val Val Glu Arg

195

NEW_SEQLIST.ST25.txt
200

205

Glu Gly Val Thr Val Arg His Asn Ser Asp Pro Pro Ala Ala Pro Arg
210 215 220

His Asp Arg Pro Met Arg Pro Tyr Asp Ala Ala Gly Asp Cys Met Asn
225 230 235 240

Tyr Gly Asp Gly Ser Val Thr Leu Ile Leu Glu Ser Arg Glu His Ala
245 250 255

Ala Ala Arg Gly Ala Arg Thr His Gly Ala Val Leu Gly Gln Ala Thr
260 265 270

Thr Arg Gly Gly Leu Asn Ser Ala Val Ala Ile Asp Thr Gly Gly Thr
275 280 285

Gly Leu Ala Glu Ala Ala Arg Arg Ala Leu Gly Asp His Thr Ser Leu
290 295 300

Gly Arg Ile Pro Tyr Val Asn Gly Gly Gly Glu Gly Asp Ala Leu Phe
305 310 315 320

Thr Arg Ile Glu Ser Asn Ala Val Arg Ala Leu Trp Gly Asp Arg Ser
325 330 335

Glu Gln Val Leu Val Ser Ser Gln Glu Ala Cys Phe Gly His Ser Gly
340 345 350

Ala Pro Leu Gly Asn Leu Gly Thr Ala Leu Thr Leu Met Met Met Arg
355 360 365

Glu Gly Glu Val Cys Pro Thr Ala Asn Cys Ala Thr Pro Ser Pro Val
370 375 380

Cys Thr Phe Asp Pro Val Pro Gly Thr Arg Thr Arg Ala Leu Gly Phe
385 390 395 400

Asp Arg Ala Leu Ser Phe Asn Tyr Gln Val Gly Gly Val Asn Ser Ala
405 410 415

Leu Leu Leu Gly Gly Gly Asp Val Cys
420 425

<210> 6

<211> 1658

<212> DNA

<213> Streptomyces griseus

NEW_SEQLIST.ST25.txt

```

<400> 6
atgtgctcga tccggcgtcc gccgccgtgc ccacggcgga gcagtgcgtg ctgggtcccc 60
tgctcaggcg acgtgccgcc gcagaccgg cggcgccgta cgcgttgatg ccggacggtg 120
acctctggac gtacgcgcgc accctccggg agaccgagga gacggccgcc gcgctccagg 180
cgctgggagt cgtcccgggc gaactggtgc tgagctggct gcccaacgga cccgacgcgc 240
tgcgcgcctg gtacgggggt aacctggcgg gcgcgggtcct ggtgccgctc aacatcgccct 300
accgggggtgc gatactgcgt cagggtgatcg ccgacagcgg ggccgaggtg ctgactctgcc 360
ggcgcgcgtg ggcggcccg cttgaggatt cggacgcgcg ggtggggcgg gtgcgcacgg 420
tggtcctgct gccggggccc gaggacgcgg ccaggacgtg ggaggcgcct gccgggcggc 480
tggccacgcg cttccgggtg gagaccgcac tgcgcgcgga ccgggcggag ttgcgcggagc 540
cggtgcccg ccccgggccg tgggaccgcg agaccgtcat ctacacctcc gggacgaccg 600
gtccgtccaa ggcgcgtcgt tcctcctacg cgcacctgta cagcagttgc accgcccgct 660
tccaggcat ggcgggaccg gaggaccgct atctgtgca actgccgctg ttccacgcgg 720
gcggcacgat cggcgcgtac gggatgctgg tgacggcggg ttccgtgacg gtcgtgcccg 780
cgttaccac cggggagttc tggccgctga tccggcggac ggggacgacc ctgtgcacgc 840
tgctcggcgt gatggcgacc tatctgtca agcagccgcc gctgccgcag gacaccgcgc 900
acccgttgcg ggcggcctac gtatcccgt tcaccgaggg ggacgaggag ttctccaagc 960
ggttcggggg cccggtccgc gcgctgttca acatgaccga ggtgtcgtgt ccggtgtctt 1020
ccgcgcggga ccaccaccg ggcgtcccg tgactgcgg ggagccccg ccggggatcg 1080
ccgcgcgggt cgtcgacgac cagcaccggg aggtggcgga cggcaggcgg ggcgaactgg 1140
tgctgcgcgc ggaccgtccg tggtcgttcc tgagcggcta cctcggccgg cccgccgaga 1200
cggccgccgt ctggcgcaac ggctggttcc acaccgggga caccttccgc cgggccccgg 1260
acggcggggt ggtcttctgt gaccgcaaga aggacgcat ccgaggcgc ggcgagaaca 1320
tctcctcctt cgagggtgag gcgcaggcgg tggccaccc ggggtgctg gaggcgcg 1380
cggtggcggt gcccgcgac gagggcgagg acgaggtgct gctggtggtg gcggaccgcg 1440
acccctcggc cccggtcgac ccggcgcgcg tgctggagtt cctgcgggag cggctggccc 1500
acttcatgct gccgcgctac atccgggtgc tgcccgagct cccgaagact cccaccggca 1560
agccgaccaa gcacacgctg cgcgcgagg gcgtggtggc ggggacgtgg gaccgcgagg 1620
ccgcgggcat ccggatacgc agggagaaga tcgtatga 1658

```

```

<210> 7
<211> 555
<212> PRT
<213> Streptomyces griseus

```

NEW_SEQLIST.ST25.txt

<400> 7

```

Met Ile Asp Asp Val Leu Asp Pro Ala Ser Ala Ala Val Pro Thr Ala
1      5      10
Glu Gln Cys Val Leu Gly Pro Leu Leu Arg Arg Arg Ala Ala Ala Ala
20     25     30
Pro Ala Ala Pro Tyr Ala Leu Met Pro Asp Gly Asp Leu Trp Thr Tyr
35     40     45
Ala Arg Thr Leu Arg Glu Thr Glu Glu Thr Ala Ala Ala Leu Gln Ala
50     55     60
Leu Gly Val Val Pro Gly Glu Leu Val Leu Ser Trp Leu Pro Asn Gly
65     70     75     80
Pro Asp Ala Leu Arg Ala Trp Tyr Gly Val Asn Leu Ala Gly Ala Val
85     90     95
Leu Val Pro Leu Asn Ile Ala Tyr Arg Gly Ala Ile Leu Arg Gln Val
100    105    110
Ile Ala Asp Ser Gly Ala Glu Val Leu Ile Cys Arg Pro Ser Leu Ala
115    120    125
Ala Arg Leu Glu Asp Ser Asp Asp Ala Val Gly Ala Val Arg Thr Val
130    135    140
Val Leu Leu Pro Gly Pro Glu Asp Ala Ala Gln Asp Val Glu Ala Leu
145    150    155    160
Ala Gly Arg Leu Ala Thr Arg Phe Arg Val Glu Thr Ala Leu Arg Ala
165    170    175
Asp Arg Ala Glu Phe Ala Glu Pro Val Pro Ala Pro Arg Pro Trp Asp
180    185    190
Pro Gln Thr Val Ile Tyr Thr Ser Gly Thr Thr Gly Pro Ser Lys Gly
195    200    205
Val Val Ser Ser Tyr Ala His Leu Tyr Ser Ser Cys Thr Ala Ala Phe
210    215    220
His Gly Met Ala Gly Pro Glu Asp Arg Tyr Leu Leu Gln Leu Pro Leu
225    230    235    240

```


NEW_SEQLIST.ST25.txt

Phe His Ala Gly Gly Thr Ile Gly Ala Tyr Gly Met Leu Val His Gly
 245 250 255
 Gly Ser Val Thr Val Val Pro Ala Phe Thr Thr Gly Glu Phe Trp Pro
 260 265 270
 Leu Ile Arg Arg Thr Gly Thr Thr Leu Cys Thr Leu Leu Gly Val Met
 275 280 285
 Ala Thr Tyr Leu Leu Lys Gln Pro Pro Leu Pro Gln Asp Thr Ala His
 290 295 300
 Pro Leu Arg Ala Ala Tyr Val Ile Pro Phe Thr Glu Gly Ala Thr Glu
 305 310 315 320
 Phe Ser Lys Arg Phe Gly Val Pro Val Arg Ala Leu Phe Asn Met Thr
 325 330 335
 Glu Val Ser Cys Pro Val Leu Ser Ala Pro Asp His His Pro Gly Val
 340 345 350
 Pro Met His Cys Gly Glu Pro Arg Pro Gly Ile Ala Ala Arg Val Val
 355 360 365
 Asp Asp His Asp Arg Glu Val Ala Asp Gly Glu Ala Gly Glu Leu Val
 370 375 380
 Leu Arg Ala Asp Arg Pro Trp Ser Phe Leu Ser Gly Tyr Leu Gly Arg
 385 390 395 400
 Pro Ala Glu Thr Ala Ala Val Trp Arg Asn Gly Trp Phe His Thr Gly
 405 410 415
 Asp Thr Phe Arg Arg Ala Pro Asp Gly Gly Leu Val Phe Val Asp Arg
 420 425 430
 Lys Lys Asp Ala Ile Arg Arg Arg Gly Glu Asn Ile Ser Ser Phe Glu
 435 440 445
 Val Glu Ala Gln Ala Val Ala His Pro Gly Val Leu Glu Ala Ala Ala
 450 455 460
 Val Ala Val Pro Gly Asp Glu Gly Glu Asp Glu Val Leu Leu Val Val
 465 470 475 480
 Ala Asp Arg Asp Pro Ser Ala Pro Val Asp Pro Ala Ala Leu Leu Glu
 485 490 495

NEW_SEQLIST.ST25.txt

Phe Leu Arg Glu Arg Leu Ala His Phe Met Leu Pro Arg Tyr Ile Arg
500 505 510

Val Leu Pro Glu Leu Pro Lys Thr Pro Thr Gly Lys Pro Thr Lys His
515 520 525

Thr Leu Arg Ala Glu Gly Val Val Ala Gly Thr Trp Asp Arg Glu Ala
530 535 540

Ala Gly Ile Arg Ile Arg Arg Glu Lys Ile Val
545 550 555

<210> 8
<211> 32
<212> DNA
<213> ARTIFICIAL

<220>
<223> PCR PRIMER

<220>
<221>
<222> (1)..(32)
<223> synthetic PCR primer

<220>
<221>
<222> (1)..(32)
<223> Synthetic, PCR primer.

<400> 8
cggtgagctg cgcggcgcct cctcctcggt gc

32

<210> 9
<211> 33
<212> DNA
<213> ARTIFICIAL

<220>
<223> PCR PRIMER

<220>
<221>
<222> (1)..(33)
<223> Synthetic, PCR primer.

<400> 9
gcaccgagga ggagggcgcg ccgcagctca ccg

33

<210> 10
<211> 32
<212> DNA
<213> ARTIFICIAL

NEW_SEQLIST.ST25.txt

```

<220>
<223> PCR PRIMER

<220>
<221>
<222> (1)..(32)
<223> Synthetic, PCR primer.

<400> 10
gcgtggcggg ctccggcaat gtggcgctgc gg 32

<210> 11
<211> 32
<212> DNA
<213> ARTIFICIAL

<220>
<223> PCR PRIMER

<220>
<221>
<222> (1)..(32)
<223> synthetic PCR primer

<220>
<221>
<222> (1)..(32)
<223> Synthetic, PCR primer.

<400> 11
ccgcagcgcc acattgccgg agcccgccac gc 32

<210> 12
<211> 33
<212> DNA
<213> ARTIFICIAL

<220>
<223> PCR PRIMER

<220>
<221>
<222> (1)..(33)
<223> synthetic PCR primer.

<220>
<221>
<222> (1)..(33)
<223> Synthetic, PCR primer.

<400> 12
cgccggggag accatatgat cgacgatgtg ctc 33

<210> 13
<211> 33
<212> DNA
<213> ARTIFICIAL

```

NEW_SEQLIST.ST25.txt

```

<220>
<223> PCR PRIMER

<220>
<221>
<222> (1)..(33)
<223> Synthetic, PCR primer.

<400> 13
ctggcccgcc cggaattctt cctggttcac acg
33

<210> 14
<211> 27
<212> DNA
<213> ARTIFICIAL

<220>
<223> PCR PRIMER

<220>
<221>
<222> (1)..(27)
<223> synthetic, PCR primer.

<220>
<221>
<222> (1)..(27)
<223> Synthetic, PCR primer.

<400> 14
tggacgcggg ggccatatga gcaagag
27

<210> 15
<211> 28
<212> DNA
<213> ARTIFICIAL

<220>
<223> PCR PRIMER

<220>
<221>
<222> (1)..(28)
<223> Synthetic, PCR primer.

<400> 15
cgcgctggtc acccatatgg ggttctgc
28

<210> 16
<211> 28
<212> DNA
<213> ARTIFICIAL

<220>
<223> PCR PRIMER

```

NEW_SEQLIST.ST25.txt

<220>
 <221>
 <222> (1)..(28)
 <223> Synthetic, PCR primer.
 <400> 16
 gccgcgtcgc catgcattga acgtgggt 28

<210> 17
 <211> 40
 <212> DNA
 <213> ARTIFICIAL

<220>
 <223> PCR PRIMER

<220>
 <221>
 <222> (1)..(40)
 <223> Synthetic, PCR primer.
 <400> 17
 cctcaggccc atggtctaga gcaccatcct gcggcgctg 40

<210> 18
 <211> 34
 <212> DNA
 <213> ARTIFICIAL

<220>
 <223> PCR PRIMER

<220>
 <221>
 <222> (1)..(34)
 <223> Synthetic, PCR primer.
 <400> 18
 gcagaggcag atctgcagac atgccacct ccca 34

<210> 19
 <211> 40
 <212> DNA
 <213> ARTIFICIAL

<220>
 <223> PCR PRIMER

<220>
 <221>
 <222> (1)..(40)
 <223> Synthetic, PCR primer.
 <400> 19
 gaccccgcc atggtctaga cattcgaccc ggtccccggc 40

NEW_SEQLIST.ST25.txt

<210> 20
 <211> 34
 <212> DNA
 <213> ARTIFICIAL

<220>
 <223> PCR PRIMER

<220>
 <221>
 <222> (1)..(34)
 <223> Synthetic, PCR primer.

<400> 20
 gtgaacgtag atcttggcaa gtcgccgcct tcgt

34